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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,524	03/17/2004	Daan Veenigen	94.0077	3962
7590 06/15/2009				
Danita Mascles, Esquire Schlumberger Technology Corporation Suite 1700 5599 San Felipe Houston, TX 77056-2722			EXAMINER ROBERTSON, DAVID	
			ART UNIT 2121	PAPER NUMBER
			MAIL DATE 06/15/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/802,524

**Applicant(s)**

VEENINGEN ET AL.

**Examiner**

Dave Robertson

**Art Unit**

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This is a Final office action in response to Applicant's reply of 3/23/2009. Claims 25-37 are pending.

***Response to Amendment***

2. Applicant amends claim 1 to recite risk information as based on a technical wellbore design and Earth properties, with steps for generating and using input data comprising a drillstring design. These amendments are addressed below.

3. Claims 25 and 29 are amended to further clarify the invention in response to rejections under 35 U.S.C. 112, 2nd paragraph. Accordingly, the rejections are withdrawn.

4. Applicant cancels claims 1-24 and 37-70. Accordingly, all objections and rejections previously made on these claims are withdrawn.

***Response to Arguments***

5. Applicant's arguments with respect to claim 25 have been considered but are moot in view of the new ground(s) of rejection made necessary by the Applicant's amendment thereto.

6. Applicant does not address the Double Patenting rejection over 10/802,613; however, a Terminal Disclaimer directed to the present application was filed in the co-pending application. Pending the refiling of disclaimers in this application, the rejection is maintained.

***Double Patenting***

7. Claims 25-37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-44 of copending Application No. 10/802,613. Although the conflicting claims are not identical, they are not patentably distinct from each other because the inventions are directed to substantially similar devices for ranking and displaying risks related to wellbore drilling.

For example, claim 25 of the present invention recites a program storage device storing instructions for *generating a drillstring design...; receiving [drillstring design] input data...; receiving input data calculation results and comparing calculation results with logical expressions, ranking the results and generating and displaying risk assessment information*. Claim 23 of the copending application recites a program storage device storing instructions for *displaying risk assessment information...; receiving [wellbore design] input data calculations results...; comparing data with logical expressions, ranking the results and generating and displaying risk information*.

Although the order and the specific phrasing of the instructions differ, the two inventions are not patentably distinct because the differences in phrasing of the functions perform by the instructions do not describe substantive differences in the overall function of the two inventions, and because instructions stored on a computer-readable medium described by the function they perform are not dependent on the order of presentation in a claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 25-37 are rejected under 35 U.S.C. 103(c) as being unpatentable over Weinstock et al. (US 6,223,143) in view of Lavu et al. (US Pat. Pub. 2005/0060213), and further in view of Aldred et al. US Pat. 7,003,439).

Claim 1

Weinstock teaches **a program storage device readable by a machine...**  
**comprising:**

**receiving input data, said input data including a plurality of input data  
calculation results (see Abstract);  
generating risk information in response to said plurality of ranked risk  
values (see Figures 16, 17; column 3 lines 24-34);  
and displaying said risk information (see Figure 28).**

However, Weinstock does not expressly teach:

**comparing each calculation result of said plurality of input data calculation  
results with each logical expression of a plurality of logical expressions, ranking  
by said logical expression said calculation result, and generating a plurality of  
ranked risk values in response thereto, each of said plurality of ranked risk**

**values representing an input data calculation result that has been ranked by said logical expression as either a high risk or a medium risk or a low risk;**

**or**

**generating a drillstring design for a wellbore in each hole section of the wellbore in response to a required wellbore geometry and a required wellbore trajectory of the wellbore; or**

**risk information based on a technical wellbore design and Earth properties.**

As to the step of *comparing calculation results with each logical expressions...*, Lavu et al. teaches automated and generalized risk assessment using logical expressions to rank risk values as high, medium, or low risk (see ¶[0018]). Lavu teaches such ranking categories allow display of risk information by risk factor (Figure 8a) to better highlight risks needing varying degrees of attention (see ¶ [0049]). It would have been obvious to one of ordinary skill in the art at the time of the invention to improve Weinstock by categorizing such risks as high, medium, and low risks to display such risk information as this would have provided the user risk information in such a manner as to draw attention to risks needed varying degrees of attention, thus giving user attention to those risks having higher potential probability or severity.

As to the specific application of Weinstock in view of Lavu to *wellbore design*, Aldred teaches directly in the art of the present invention, a method of assessing risks of wellbore designs to avoid undesirable occurrences (risks) during drilling (several examples given, see Aldred, Background of Invention). Aldred includes teaching the

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use of Earth properties information (column 5, lines 59-59 and column 6, lines 52-67) and generating a drillstring design for a wellbore (see column 4, lines 40-60, esp. column 5, lines 13-17: noting that a “planned wellbore” is a drillstring design including wellbore casing, drill bits, casing depths, and bottom hole assembly).

Given Weinstock and Lavu’s general tool and the known risks to wellbore design taught by Aldred, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply Weinstock’s and Lavu’s general risk assessment methods to the art of wellbore design as a means of assessing risk prior to drilling to avoid undesirable consequences of failing to anticipate risks of any particular drilling plan.

Claim 26

Weinstock teaches **risk categories** (Figure 5A, Item 59).

Claim 27

Weinstock teaches **ranked subcategory risks** (Figure 6 and related; Failure Mode is a “subcategory” of Subsystem risk).

Claim 28

Weinstock teaches **a plurality of ranked individual risks** (see Figures 6, 17 and related; failure modes are individual risks as are risks associated with individual elements).

Claim 29

Weinstock teaches **wherein said risk categories are selected from a group consisting of an average individual risk, a subcategory risk, an average**

**subcategory risk, a total risk, an average total risk, a potential risk for each design task, and an actual risk for each design task** (see Figure 28 and related).

Claim 30

Weinstock teaches **wherein said subcategory risks of said risk categories is selected from a group consisting of gains risks, losses risks, stuck pipe risks, and mechanical risks** (see Figure 28; e.g. 'Housing Structural Failure' is a mechanical risk).

Claim 31

Weinstock does not expressly teach **wherein said individual risks are selected from a group consisting of [a set of risks associated with wellbore drilling]**.

However, risk data associated with wellbore drilling amounts to nonfunctional data in the context of the claim. As the particular risk data has no structural affect on the invention as claimed, it would have been obvious to one of ordinary skill in the art at the time of the invention that any such data may be entered into Weinstock's generalized risk assessment system, for example, a set of risk data associated with wellbore drilling, as this would have provided the user of such data automated means of evaluating risks associated with this particular application area.

Claim 32

Weinstock teaches **receiving ranked risk values and calculating ranked risk categories** (see Figure 5C 'Analysis Module' 'Risks ranked by subsystems and Failure Modes').



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Claim 33

Weinstock teaches **displaying ranked risk categories** (see Figure 21 and related discussion of analysis results exported to Tool Box for 'View Analysis Results')

Claims 34 and 35

Weinstock teaches **receiving ranked risk values and calculating ranked subcategory risks** (see Figure 21, subcategory risks calculated as in Figure 6 by 'Failures Mode Quantification'); **wherein the step of displaying said risk information comprises displaying said the ranked subcategory risk** (see Figure 28, risk displayed for each subcategory).

Claim 36

Weinstock teaches **receiving ranked risk values and using ranked risk values to represent ranked individual risks** (see Figure 5C 'Analysis Module' 'Risks ranked by subsystems and Failure Modes').

Claim 37

Weinstock teaches **displaying ranked individual risks** (see Figure 9).

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is (571)272-8220. The examiner can normally be reached on 8 am to 6 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dave Robertson/  
Examiner, Art Unit 2121

/Albert DeCady/

Supervisory Patent Examiner, Art Unit 2121